



UNIVERSITY OF ILLINOIS EXTENSION

HOME, YARD & GARDEN PEST

College of Agricultural, Consumer and Environmental Sciences, University of Illinois at Urbana-Champaign
Illinois Natural History Survey, Champaign

NEWSLETTER

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PLANT DISEASES

Dutch Elm Disease Again

Although the number of Dutch elm disease (DED) cases in Illinois has dropped since the epidemic of the 1950s, we can't expect Dutch elm disease to disappear completely from Illinois. The University of Illinois Plant Clinic confirms Dutch elm disease every year from infected Illinois trees. We confirmed 13 cases in 2002, 9 in 2003, and 21 in 2004. This season started May 2, and already the Plant Clinic has confirmed 3 cases in Cook County.

DED symptoms generally begin in early summer. Although it is unlikely that you will be able to save an infected tree, you can help nearby healthy elms. American elms are very susceptible to the DED fungus. Although Chinese elm and Siberian elm are known to be more resistant, infection of these species can occur as well. Breeding programs have produced the more resistant Sapporo Autumn Gold, American Liberty, and Urban elms. Alden Townsend of the National Arboretum released the first two American elm cultivars ('Valley Forge' and 'New Harmony') tolerant to DED to nurserymen and the public. For more information on his work, visit this site, <http://www.usna.usda.gov/Research/~amt.html>. Ask about DED resistance when purchasing elms.

Dutch elm disease is caused by the fungus *Ophiostoma ulmi* (*Ceratocystis ulmi*). Watch for yellowing of the elm leaves, followed by wilting and browning. A single branch usually shows symptoms first (called flagging), with rather rapid spread to adjacent branches and the entire tree. Look for vascular discoloration to help with diagnosis of this disease. Peel back the bark of a symptomatic branch to reveal the brown streaks in the otherwise tan outer sapwood. Positive identification would require laboratory culturing of the fungus, but send sections you have not peeled. The fresh wood sections can be sent in plastic or foil to the Plant Clinic for testing. Chilling the wood is necessary for oak wilt suspects but should not be necessary with Dutch elm suspect samples. Expect about 7 days of lab time for the fungus to grow to the point where it can be positively identified. There is a \$12.50 fee for this service.

Confirmation of Dutch elm disease involves isolating the fungus from infected wood. First, wood samples are surface disinfected. The bark on one end of the branch is removed, and chips of wood are taken from the exposed wood. These chips are placed in a potato dextrose agar and incubated for 5 to 7 days before the fungus can be positively identified. Keep in mind that the sampled wood represents the entire tree, so the sample must be taken from areas of the tree showing symptoms. Laboratory isolations are most successful when samples contain live wood that exhibits vascular discoloration. Samples need to be about thumb thickness and 6 to 8 inches long. If you have questions about sampling, refer to *Report on Plant Disease*, no. 647, "Dutch Elm Disease and Its Control." This report is available in Extension offices or on the Web at <http://www.ag.uiuc.edu/%7Evista/horticult.htm>.

There are no chemicals available to homeowners for control of DED. Some products available to commercial applicators are used as preventive or therapeutic treatments when the disease is caught early. Consult the *2005 Commercial Landscape and Turfgrass Pest Management Handbook* for details. Use of Alamo or Arbotect is discussed, as are sanitation measures and prevention. (Nancy Pataky)

Pine Decline or Pine Wilt?

Pine wilt is a disease caused by a nematode, the pine-wood nematode. The disease can kill a mature pine in one season and often does in Illinois. That problem was discussed in issue no. 5 of this newsletter. Pine wilt is found on almost all pine species grown in Illinois, **except** white pine. In the past 25 years, the Plant Clinic staff has recovered pinewood nematodes from white pines only once, and in that case the tree was already dead. It was speculated that the nematode had been moved to the tree by the Sawyer beetle after the tree was dead.

Many of you who grow white pines in nurseries or landscapes have experienced pine-wilt-like symptoms, but on your white pines. This condition is most likely white pine decline. A decline is a situation that involves many stress factors working together to cause tree decline and often tree death. Usually an infectious agent is not involved or involved only as an added stress. White pine decline frequently results in tree death.

White pine problems seem to be present throughout the state, especially in central and southern areas. Symptoms vary but generally include some pattern of needle yellowing or browning, shriveled bark on branches or trunk, sap exudate on branches, and in some cases death of the tree. Affected trees have ranged in size from 2 feet to more than 20 feet, indicating that trees of any could be affected.

Over the years, the Plant Clinic staff has assayed white pine samples for the presence of pinewood nematodes; has cultured for fungal pathogens of needles, stems, and roots; and has inspected for insect infestations or injuries. The only common factor seems to be root decline. Few live white roots have been found on affected trees, but fungal pathogens cannot be correlated with poor rooting. It appears that roots are on the decline for other reasons. Some possibilities include heat, drought, flooding, deep planting, and sudden extremes in temperature and moisture.

White pines are understory trees that thrive in the cool, moist, well-drained soils of Wisconsin although they grow with intermittent success in Illinois. Many of the problem trees we have seen in Illinois have been situated on clay sites or exposed to the elements (planted in new housing developments or used as windbreaks). It is also likely that site stress has contributed to the decline of these trees. Excessive rains may contribute to root injury and decline by saturating the soil and causing a lack of soil oxygen.

We have already seen more white pine problems this year. If roots were injured as we are suggesting, they will not be able to absorb enough water in drought stress situations. Watering helps, as does the use of natural mulch (such as shredded bark) over the root system; but without adequate root mass, plants will not be able to use the available water quickly enough to replace what is used by the foliage. The result will be sudden browning or off-color needles and death of branches.

Because these problems in white pine are not usually the result of an infectious disease, immediate removal of the tree is not necessary. Instead, try to keep the tree watered and see how it responds. Also, try digging into a bit of the root system for a better picture of the situation. If roots are brown in cross-section and the outer layer easily pulls off or is not present, then root injury has occurred. If the roots are white and healthy, then the problem is aboveground and our theory is wrong, at least in your case.

Another factor that may be involved in Illinois is the pH of the soil. Our landscape soils have a fairly high pH level, whereas pines prefer more acidic soils. It may be helpful to fertilize with an acid fertilizer specifically packaged for pines or acid-loving plants.

Follow the directions so as not to burn the roots by applying too much fertilizer. Fertilization is usually recommended in early spring or late fall. (*Nancy Pataky*)

Juniper Tip Blight

Juniper tip blight (also called *Phomopsis* tip blight) commonly affects new growth on junipers. It may also appear on arborvitae, white cedar, and baldcypress. In Illinois, infection begins in May, so start watching new growth for symptoms. *Phomopsis* blight causes the tips of new growth to turn brown and die. This disease is common in warm, wet weather as we have experienced in much of Illinois the last few weeks. It can be controlled with fungicides and resistant varieties.

The newest growth on a juniper is susceptible to infection and becomes resistant with age, usually once needles become a normal, dark green. Following infection, shoot tips turn light green, then brown. One diagnostic clue is the presence of a grayish band at the base of the dead shoot. In this band are pinhead-sized, black, fruiting bodies (pycnidia) of the fungus. The pycnidia are visible with the naked eye or with the aid of a hand lens. If the suspect tissue is very dry, place it in a plastic bag with damp paper toweling overnight. The fruiting bodies will be easy to see the next day. Waiting several days will yield all sorts of interesting secondary fungi but will make diagnosis more difficult.

Management of *Phomopsis* blight includes pruning and removing infected foliage when the plant is dry, using preventive fungicides, or using resistant varieties in new plantings. It is also helpful to space plants to allow good air movement around plants and to provide adequate but not excessive fertilization. Prune only dry foliage to avoid spreading spores and to reduce the risk of infection by other fungi. Avoid excessive pruning or shearing in the spring or fall when infection could occur. Fungicide recommendations are provided in the *2005 Illinois Commercial Landscape and Turfgrass Pest Management Handbook*, as well as the *Home, Yard, and Garden Pest Guide*. Fungicides are applied in the spring and fall for best disease control. *Report on Plant Disease*, no. 622, "Phomopsis Twig Blight of Juniper," contains more details about *Phomopsis* blight. This report is available in Extension offices or on the Web at <http://www.ag.uiuc.edu/%7Evista/horticult.htm>.

Other juniper problems that can mimic *Phomopsis* tip blight include fertilizer burn, drought stress, root injury and Kabatina blight. Kabatina blight is caused by a secondary fungal invader on wounded plants. It usually follows winter injury and appears in early spring, before new growth has appeared. Fungicides are not useful against Kabatina blight. (*Nancy Pataky*)

Illinois Launches Sudden Oak Death/ *P. ramorum* Blight Web Site

We're happy to announce the "birth" of a new University of Illinois Web site, <http://pramorom.cropsci.uiuc.edu>, which summarizes and consolidates the sudden oak death/*P. ramorum* blight information as it pertains to Illinois. Although *P. ramorum* has not been identified in Illinois, the threat of its introduction remains real. This Web site provides general information, diagnostic assistance and screening questions, answers to frequently asked questions, a comprehensive PowerPoint presentation, and a link to the "Illinois Sudden Oak Death/*Phytophthora ramorum* Blight Detection and Response Plan." Most importantly, this Web site points to a rich collection of disease symptom images on a wide range of host plants.

In the April 6 issue of this newsletter, Nancy Pataky provided a update regarding sudden oak death/*P. ramorum* blight and our activities over the past year. University of Illinois Extension is prepared to assist with the monitoring for and detection of this disease. Watch this new Web site and this newsletter for updates. (Bruce E. Paulsrud)

INSECTS

Scouting Watch

Black turfgrass ateniuss is a small, 1/4-inch-long grub that feeds primarily in highly maintained and irrigated turf such as golf courses, being most common in the wetter areas such as greens, as well as green aprons and fairway swales where water collects. Although this grub is found in home lawns and other turf, it is very unusual to have high numbers. The 1/4-inch-long, cylindrical, brownish to black beetles overwinter and fly to golf courses at this time when bridal wreath spirea (*Spiraea x vanhouttei*) is in bloom. They are very obvious in the clippings baskets of greens mowers. If the beetles are numerous or you tend to have damage from these insects, apply imidacloprid (Merit) or thiamethoxam (Mach 2) to provide control of the larvae when they hatch a couple of weeks later.

Gypsy moth larvae were sprayed by the Illinois Department of Agriculture "Slow the Spread" program during the week of May 16 in northeastern Illinois. As of May 18, the caterpillars ranged from 1/4 to 5/8 inch long. They are just hairy and black when very young, but those 1/2 inch and larger were already showing reddish orange and blue spots down the back. Even in heavily infested areas, damage was slight but very noticeable on close inspection, with many small holes and leaf margins eaten. The oak foliage is mostly expanded, with plenty of leaf area

for spray deposition. *Bacillus thuringiensis 'kurstaki'* (Dipel, Thuricide), spinosad (Conserve), diflubenzuron (Dimilin), and tebufenozide (Mimic) are recommended for control.

Bagworms should be hatching in southern Illinois, but it is still too early to treat. The young larvae spin out long strands of silk and blow from tree to tree for about 2 weeks after hatching. Any spray applications at this time will result in more larvae blowing onto the tree after the insecticide has broken down, requiring another treatment later. The damage caused at this time of year consists primarily of window-feeding, which is not very noticeable. On needled evergreens, fed areas will be light-colored from the surface of the needles being eaten away. Although these areas will turn brownish later, they will not be obvious, due to the relatively small areas of damage. We recommend treatment in mid-June in southern Illinois and early July in central and northern Illinois. (Phil Nixon)

Euonymus Scale

Beautybush, *Kolkwitzia amabilis*, is blooming throughout portions of Illinois, which means that euonymus scale, *Unaspis euonymi*, crawlers are out and about on plants looking for a place to settle down and initiate the feeding process. Evergreen euonymus and pachysandra are their primary hosts in Illinois.

The crawlers resemble small yellow spots that move around on leaves and stems. Plants that are stressed (as with other insect and mite pests) are more susceptible to attack than plants that are receiving adequate (but not too much!!) water and fertilizer.

Euonymus scale overwinters as a mated female on plant stems. Eggs develop underneath the scale and then hatch over a 2 to 3 week period. The newly hatched crawlers migrate on the stem and start feeding near the base of plants. Crawlers may also infect nearby plants by being blown around on air currents, which results in infestations oftentimes not detected until populations are excessive and damage is noticeable. Leaves become spotted with yellow or white areas. Plants that are growing near structures such as along foundations tend to be more susceptible than those growing in open areas receiving sufficient air movement. The variegated forms of euonymus are more susceptible to attack than the green forms.

Heavy infestations of euonymus scale can cause complete defoliation or even plant death. Euonymus scale females are dark brown, flattened, and shaped like an oyster shell. The males, however, are elongated, ridged, and white in color. Males are commonly found on leaves, whereas females are located on stems and along leaf veins. There are two generations per year in Illinois.

Pruning out heavily infested branches, without ruining the aesthetic quality of the plant, is an extremely effective means of quickly reducing the scale population. Be sure to discard pruned branches away from the area as soon as possible. Another recommendation is to avoid planting *Euonymus japonica* in landscapes, as this species is highly susceptible to euonymus scale. *Euonymus alata* is less susceptible (or resistant) to euonymus scale even when nearby plants are infested. Insecticide applications performed in late May through early June—when the crawlers are active—can prevent problems from occurring later in the season. Insecticides recommended for controlling euonymus scale including acephate (Orthene), bifenthrin (Talstar), cyfluthrin (Tempo), insecticidal soap, and horticultural (= summer) oil. Be sure to check plants regularly for crawlers, which can help time insecticide applications. Depending on the infestation, three or four applications made at 10-to-12-day intervals may be needed. Remember that euonymus scale is a hard (armored) scale, so soil applications of imidacloprid (Merit) will not be effective.

Euonymus scale is susceptible to a variety of natural enemies, including parasitoids and predators. These include braconid and ichneumon wasps, lady beetles, green lacewings, and minute pirate bugs. However, natural enemies generally don't cause enough mortal-

ity to impact high populations of euonymus scale. In addition, the insecticides acephate (Orthene), bifenthrin (Talstar), and cyfluthrin (Tempo) are extremely harmful to natural enemies, so applications of these materials will disrupt any natural control. (*Raymond A. Cloyd*)

Home, Yard, and Garden Pest Newsletter is prepared by Extension specialists from the University of Illinois at Urbana-Champaign and the Illinois Natural History Survey. Information for this newsletter is gathered with the help of staff members, Extension field staff, and others. Karel Jacobs and Donna Danielson of The Morton Arboretum also provide information and articles.

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